UNIFIED MESSAGING SYSTEM

BACKGROUND OF THE INVENTION

The present invention relates to a unified messaging system.

A unified messaging system is defined as a system whereby all messages, for example voicemail, fax and e-mail etc., are presented within one central In-box location. These can be collected via various means and converted to the most appropriate format specified by the collector.

Existing unified messaging systems are singular systems which interface with a telephone switchboard and work as a single entity.

Such a system has evolved from PABX and telephone switchboard systems. The unified messaging components are added to the switchboard typically in a separate computer system. Telephone calls are initiated on telephone network, then pass through the switchboard PABX. From there calls are transferred to the computer system running the unified messaging system. An example of such a conventional system is shown in FIG. **1**.

The system comprises a PBX/PABX unit **3** and a separate computer system **5**. The PBX/PABX unit **3** is connected to the external telephone line **7** via the PSTN, public telephone network, and to the computer systems **5** via an internal connection **9**. The computer system **5** has a network connection **11** for distribution of messages, for example, e-mail. On a functional level the above system operates as a single entity, i.e. there are no other distributed nodes to communicate with, the functionality, load processing, databases are concentrated on one system. It may be connected via the PSTN public phone network or via a computer based network (e.g. TCP/IP). These input/output connections operate in the bottom three layers of the OSI protocol model.

Such a system however, requires a switchboard and are then transferred to the computer system running the unified messaging system.

SUMMARY OF THE INVENTION

The unified messaging system of the present invention seeks to provide a messaging system in which the telephone lines and network connection go directly into the computer system which is running the unified messaging system.

In accordance with the present invention there is provided a unified messaging system, comprising a plurality of nodes and network means for interconnecting said plurality of nodes for distributed operation, each node comprising means for receiving, storing and transmitting data, characterized in that an In-box having a predetermined logical location is reserved for each user, and data intended for a particular user is stored at the node at which it is received together with information indicating the logical location of the In-box of the user for which the data is intended, wherein the system is arranged such that said data can be retrieved at one or more other nodes in the system and such that all data bearing said predetermined logical location information is accessed when said user's In-box is accessed.

At least one of the nodes may include means for changing the format of said data. For example, at least one of said plurality of nodes may include means for converting text data into speech data and/or at least one of said plurality of nodes may include character recognition means.

The nodes preferably have at least two input/output connections, an external network connection and an external telephone connection.

The data may comprise one or more of a voicemail message, fax message, e-mail message, web response message, phone answering message, short message service (SMS) message, notification message, system message, video-mail message, white board message.

The system is preferably arranged to provide a menu indicating data bearing the predetermined logical location information when a user's respective In-box is accessed. The menu may, for example, be a voice menu or it may be displayed on a screen in a textual format.

The system may be arranged such that data is retrieved from a first node and transmitted to a second node when said first node receives a signal from said second node upon instructions form a user. Additionally or alternatively, the system may be arranged such that data is transmitted from a first node to a second node at a predetermined time set by the system.

The nodes are preferably interconnected by means of an Internet-based network.

At least one of the plurality of nodes may comprise means for diverting incoming data to another one of the plurality of nodes, and such means may be automatic (i.e. activated when one of the nodes is busy) and/or user-activated (i.e. when, for example, the user travels).

In providing the unified messaging in a node-based distributed system, the unified message system can be built from an Internet type environment in which telephone components can be seamlessly integrated as just another form of data. The present invention allows for a rich feature set of distributed commands throughout the system. It is the node-to-node distribution of intelligence which is one of the primary significant features of the present invention.

The following table highlights the main differences and advantages of the present invention over the unified messaging system described with reference to FIG. **1**:

Traditional Unified Messaging System	An embodiment of the Unified Messaging System of the present invention
Works a single system	Nodes work together a distributed system
Network Connection used for input and output of messages only	Network Connections used for input and output of messages AND distributed operation and inter-node control
Requires Connection to a Telephone Switchboard or PABX for the input and output of phone based messages	The Phone Connection connects straight to the Node - no external telecom based piece of equipment is required
No Remote integrated message leaving options	A node can receive a message in a different location to the user. This message enters the common Unified Messaging distributed system. This capability allows for the "Virtual Branch Office" a phone number which can receive faxes, voicemail etc. which can be in a totally remote city (example, I am based in London but I have a Virtual Branch Office in Hong Kong - my callers in Hong Kong contact me via the local Hong Kong number - not an international call)
No Local Node Remote roaming	The Virtualplus user can then access any message from any of the Nodes (as they work together as one system) with the same interface. For example, a User has service with a London based Node. While on holiday in Los Angeles he can call the Los Angeles based node for the price of a local call to retrieve all his messages.